

## Repeat Biopsy In Lupus Nephritis: A Single-Center Experience.

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**Background/Purpose:** Renal involvement in systemic lupus erythematosus (SLE) is an important cause of morbidity and even mortality. Lupus nephritis has diverse morphologic manifestations with varying clinical presentations and consequences. Treatment and prognosis accordingly range from excellent even with only observation with minimal mesangial deposits, to kidney failure despite aggressive immunosuppression in patients with severe proliferative disease. Renal biopsy plays a crucial role in the diagnosis of the specific form of lupus nephritis, and rebiopsy is often necessary during follow up in order to assess renal activity and guide treatment. The objective of our study was to describe characteristics of second biopsies in SLE patients and try to identify variables useful for prediction of histological form of lupus nephritis in second biopsies.

**Methods:** SLE patients (ACR criteria) who had a diagnosis of lupus nephritis and two or more renal biopsies after year 2001 were included. Electronic medical records were reviewed and clinical, laboratory and treatment data were obtained from each patient. Renal biopsy was classified according to the International Society of Nephrology/Renal Pathology Society (ISN/RPS) classification of lupus nephritis.

**Results:** We identified 45 lupus patients (40 females) with at least two renal biopsies. These patients had a total of 116 biopsies. Class IV (51,8%) and V (17,2%) were the most frequent findings. Treatments received are shown in table 1. Laboratory findings at the moment of biopsy are shown in table 2 and showed no significant differences between different histology patterns. In multivariable analysis no variable was significantly associated with any histology class at time of the second biopsy. 27 patients (64%) changed histology class between successive biopsies. Those who did not change were mostly class IV (68.8%). 55 rebiopsies (82%) generated a treatment modification and 12 (18%) did not (insufficient data from 6).

**Table 1.** Treatment received after renal biopsies.

Induction treatment	Maintenance treatment
IV Cyclophosphamide $\geq$ 6 pulses (33%)	Mycophenolate (45,7%)
Mycophenolate (22,4%)	Azathioprine (17%)
IV cyclophosphamide < 6 pulses (13%)	Cyclophosphamide (9,5%)
Rituximab (8%)	Others (8,6%)
Others (21%)	

**Table 2.** Laboratory features at time of second biopsy.

	Class II	Class III	Class IV	Class V	Combination b/ III or IV + V
Mean proteinuria (g/24 hs)	0.92	1.24	2.29	3.57	5.92
Mean creatinine (mg/dl)	0.98	1.14	1.27	1.16	1
Patients with hematuria, (>4 RBC), %	88.9%	60%	69%	50%	50%
Mean Albumin (g/dl)	3.05	3.39	2.8	2.93	2.4
Low C3, %	57.1%	33%	76.7%	50%	67%
DNA +, %	66.7%	44.5%	81.8%	26.7%	50%

**Conclusion:** In this lupus nephritis cohort, 64 % of patients with a repeated biopsy showed change in the histological class. We were unable to identify variables capable of predicting histological class in second biopsies. In 82% of patients second biopsy was associated with treatment change.